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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/186,817	11/05/1998	MARK RAPAICH	450.183US1	2299

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EXAMINER

LAO, LUN S

ART UNIT PAPER NUMBER

2643

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Please find below and/or attached an Office communication concerning this application or proceeding.

84

<b>Office Action Summary</b>	<b>Application No.</b> 09/186,817	<b>Applicant(s)</b> RAPACH, MARK	
	<b>Examiner</b> Lun-See Lao	<b>Art Unit</b> 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                                                |                                                                             |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                    | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2,3</u> . | 6) <input type="checkbox"/> Other:                                          |

## DETAILED ACTION

### *Introduction*

1. Claim 1-13 of U.S. application 09/186,817 filed on 11/05/98 are presented for examination.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9, 11, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Cooper (US PAT 5,592,508).

Regarding claim 9, Cooper teaches that a method of routing digital audio to a plurality of digital-to-analog converters in a personal computer comprising the steps of: receiving digital audio data from one of a plurality of digital audio sources (see col.3 line 20-45); and routing the digital audio data to one of a plurality (see fig. 4, 13-1-13-n) of converters based on a digital output or analog output matching the particular input signal which is coupled to the router (see fig. 4 #16) which is desired converter quality.

Regarding claim 11, Cooper teaches that a method of routing digital audio to a plurality of audio digital-to-analog converters (see fig. 4 #16) in a personal computer comprising the steps of: receiving digital audio from one of a plurality of digital audio sources (see col.3 line 20-40); assigning digital audio data from each source a priority; and routing the digital

audio data to one of a plurality of converters in an order determined by the assigned data priority (see fig.4 col.4 line 50-col.5 line 55).

Regarding claim 13, Cooper discloses that a method of routing (col.4 line 55-col.5 line 9 #16) digital audio signals in a personal computer comprising the steps of: routing (fig.4 #16) digital audio signals from standard digital audio sources (col. line 25-40, hard disk) to a standard quality digital-to-analog (see fig.4, 10-1-10-n) matching the input signal converter; and routing digital audio signals from high-quality audio sources (col.3 line 20-40, optical disk) to a high-quality digital-to-analog ( see fig.4, 10-1-10-n) matching the input signal converter.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5-6, 7-8, 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hewitt (US PAT 5,896,291) in view of Cooper (US PAT 5,592,508).

Regarding claim 1 Heitt teaches that a personal computer system comprising: a plurality of audio digital-to-analog converters (see fig.2 and col.5 lines 45-60), however, Heitt fails to teach that a controller configured to receive digital audio signals from multiple sources and route the digital audio signals to a selected digital-to-analog converter.

On the other hand, Cooper discloses that a controller configured to receive digital audio signals from multiple sources and route the digital audio signals to a selected digital-to-analog converter based on a desired converter quality (see fig.4 and col.4 line 50- col.5 line 15).

Therefore, it would have obvious to one of ordinary skill in the art the time the invention was made, would have been motivated to combine the teaching of Hewitt and Cooper to achieve an analog to digital converter which is relatively immune to particular peculiarities of different analog signals, is suitable for use with digital signals and may be easily adjusted to accommodate changes in widely divergent types of analog or digital signals, including signals of different forms, formats, bandwidths and precision.

Regarding claims 5-6, Cooper teaches that the personal computer system is comprising a user configures the controller by hardware or software controls, such that the controller routes a selected analog signal to a selected one of a plurality of analog outputs (see fig.4 and col.4 line 5- col.5 line 15); and the selected analog signal is provided by one of a group consisting of the digital-to-analog converters, Compact Disc players, DVD players, microphones, TV tuners, or analog inputs (see col.3 lines 20-42).

Regarding claims 7-8 Hewitt teaches that the personal computer system is comprising a standard personal computer bus for transferring the digital audio signal from the digital audio source to the controller (see fig.2 and col.5 line 45-60); and the digital audio signal is transferred from the digital audio source to the controller by a direct electrical or optical connection between the two (see fig.2 and col.5 lines 45-60).

Regarding claim 2, Hewitt teaches that a personal computer system comprising: not show (one or more standard digital audio sources; one or more high quality digital audio sources). Hewitt fails to teach that a personal computer for routing digital audio signals from standard digital audio sources to a standard quality digital-to-analog converter; and means for routing digital audio signals from a high-quality digital audio source to a high quality digital-to-analog converter.

However, Cooper discloses that: one or more standard digital audio sources; one or more high quality digital audio sources (see col.3 lines 20-45); means for routing digital audio signals from standard digital audio sources to a standard quality digital-to-analog converter; and means for routing digital audio signals from a high-quality digital audio source to a high quality digital-to-analog converter (see fig.4 and col.4 line 50- col.5 line 15).

Therefore, it would have obvious to one of ordinary skill in the art the time the invention was made, would have been motivated to combine the teaching of Hewitt and Cooper to achieve an analog signal coding and transmission apparatus to provide large switching and routing network in order to couple signals from the output of one particular source to the input of another particular processor or user of the signal.

Regarding claim 3, Cooper discloses that the personal computer system includes any of the high quality or standard quality digital-to-analog converters are coder-decoders (CODECs) that contain both digital-to-analog converters and analog-to-digital converters (see col.4 line 50- col.5 line 50).

Regarding claim 12 Hewitt teaches that a personal computer system comprising: memory; a processor; a bus (see fig. 1 #102, 108, 104); a plurality of digital audio converters (see fig. 2 #212, 206); but Hewitt fails to teach that a controller configured to receive digital audio signals from multiple sources and route the digital audio signals to a selected digital-to-analog converter based on desired converter quality.

However, Cooper teaches that a method of routing digital audio to a plurality of digital-to-analog converters in a personal computer comprising the steps of: receiving digital audio data from one of a plurality of digital audio sources (see col. 3 line 20-45); and routing the digital audio data to one of a plurality (see fig. 4. 13-1-13-n) of converters based on a digital output or analog output matching the particular input signal which is coupled to the router (see fig. 4 #16) which is desired converter quality.

Therefore, it would have been obvious to one of ordinary skill in the art the time the invention was made, would have been motivated to combine the teaching of Hewitt and Cooper to achieve a computer system to provide an analog signal coding and transmission apparatus to have large switching and routing network in order to couple signals from the output of one particular source to the input of another particular processor or user of the signal.

6. Claims 4, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hewitt (US PAT 5,896,291) and Cooper (US PAT 5,592,508) as applied to claims 1, 9 above, and further in view of Silberschatz.

7. Regarding claims 4,10, Computer resource management such as dispatching task to a computer resource (such as processor and memory) is a well known operating system function, which can be found in standard textbooks on operating systems such as ' Operating System Concepts by A.Silberschatz'. Silberschatz teaches dispatching a plurality of computer tasks destined to a computer resource based on the priorities assigned to each task. See sections 5.3.3 and 5.3.5. Silberschatz also teaches that priority scheduling is applicable to real-time computer systems which supports multiple multimedia inputs (paragraph bridging pages 150-151). Since Cooper is a real-time computer systems, which supports multiple multimedia inputs (fig. 4 and denoting text), it would have been obvious to apply the teaching of Silberschatz to Cooper. In so doing, it would have been obvious to assign respective priority to each of the audio sources so that the audio signals (representing computer tasks) are dispatched to each converter (computer resource) based on assigned priorities. Although Silberschatz implements the teaching by software means, a hardware equivalent would have been obvious. One of ordinary skill in the art would have been motivated to apply the teaching of Silberschatz because this scheduling algorithm allows both internal and external control of the scheduling criteria (page 142, 2<sup>nd</sup> paragraph).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered to applicant's disclosure. Graczyk (US PAT 5,192,999) and Miller are recited to show other related the multiple audio dacs with pc compatibility.



9. Any response to this action should be mailed to:

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Washington, D.C. 20231

or faxed to: (703) 872-9314


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao, Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao, Lun-See  
Patent Examiner  
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**DUC NGUYEN**  
**PRIMARY EXAMINER**